UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/274,797	03/23/1999	MORTEN STORR	09918/032001	8926

20985 7590 01/23/2004

FISH & RICHARDSON, PC
12390 EL CAMINO REAL
SAN DIEGO, CA 92130-2081

EXAMINER	
HOANG, THAI D	

ART UNIT	PAPER NUMBER
2667	17

DATE MAILED: 01/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/274,797	STORR, MORTEN	
	Examiner	Art Unit	
	Thai D Hoang	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment filed on 11/12/2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 37-54 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 37-54 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims are rejected under 35 U.S.C. 102(e) as being unpatentable over Lincoln, U.S patent No. 6,301,226.

Regarding claims 37 and 51, Lincoln discloses a method and system, which is called "Asynchronous Transfer Mode System and Method". Lincoln's method is operated as follows:

In response to receive a forward RM cell, a switch in the network computes a rate decision block (RDB, fig. 12 A, step 208 and fig. 7). Also, Lincoln teach that if a cell has been scheduled for the particular time slot, the block 100 in FIG. 4 selects a virtual channel connection in a table 102 in the control memory 38. As shown in FIG. 4, the table 102 contains a plurality of virtual channel connections, which are illustratively

designated as "VCC 1", "VCC 2", "VCC 3", etc. The virtual channel connection VCC 2 is illustratively shown as being selected in the table 102; col. 5, lines 57-63 (determining rate-based, flow-control data in a network switch, in response to receipt of a forward resource management control cell in the network switch, the forward resource management control cell corresponding to a connection linking a source node and a destination node via the network switch)

When received by the station B, the forward RM cells 134 become backward RM cells 136 in the station B. The backward RM cells are transmitted in the receive direction by the station B through the switch 132 to the station A. FIG. 5 also illustrates at 138 forward RM cells which are transmitted in the receive direction by the station B through the switch 132 to the station A. When received by the station A, these forward RM cells become backward RM cells 140 in the transmit direction from the station A to the station B. The backward RM cells 140 are then transmitted in the transmit direction from the station A through the switch 132 to the station B; col. 7, lines 8-17 (receiving in the network switch, from the destination node, a backward resource management control cell corresponding to the forward resource management control cell.)

When the station A is transmitting cells in the transmit direction to the station B, the station A changes its rate depending upon the response of the station B and the response of the switch 132 in the receive direction from the station B to the station A; col. 7, lines 22-26 (modifying in the network switch the backward resource management control cell, before forwarding the backward resource management control cell to the

source node, based on the rate-based, flow-control data determined in response to the receipt of the forward resource management control cell.)

Regarding claim 38, Lincoln discloses that the system uses Asynchronous Transfer Mode (ATM) in both forward and backward resource management cells (abstract.)

Regarding claim 39, Lincoln discloses the first resource management data stored in a database (element 38, figures 2-4 and 7) and retrieving the first resource management data from the database using virtual channel associated with the second control cell (forward RM cell from the switch to the destination B; fig. 5; col. 7, lines 5-7.)

Regarding claim 40, Lincoln discloses that the ABR manager 154 (fig. 6) may receive through the line 1a a forward resource management (RM) cell and a VCC (or source) number, which is stored in a queue of the control memory 38; fig. 5, col. 11, lines 19-23 (receiving the forward resource management control cell in the network switch and placing a management event record corresponding to the forward resource management control cell in a queue). Also, FIG. 5 of Lincoln's system illustrates at 134 forward RM cells transmitted in the transmit direction by the station A through the switch 132 to the station B; col. 7, lines 5-7 (forwarding the forward resource management control cell); and sending resource management cell from the queue for processing the data using a rate control algorithm; fig. 3-4, 6; col. 7, lines 31-42; algorithm: col. 8, line 22 – col. 10, line 27 (processing the management event record using a rate control algorithm to produce the rate-based, flow-control data.)

Regarding claim 41, Lincoln's method comprises a placing virtual channel identification data in a queue (set up virtual channel identification in a queue; fig. 3, elements 72 and 73; fig. 4 element 102; col. 5, lines 60-65), and removing the virtual channel identification data from the queue, and processing the data using a rate control algorithm (col. 6, line 61 – col. 7, line 4; col. 7, lines 31-42.)

Regarding claim 42, a block 208 in FIG. 12a in the system disclosed by Lincoln indicates how the new one of the Rate Decision Blocks 170 is selected to alleviate the congestion indication on the line 203. The value of the mantissa is stored in an explicit rate field in the backward RM cell. The new one of the rate decision blocks 170 is computed from this value of the mantissa and from the Exponent Base and Shift values in the Exponent Table 168. The Congestion Explicit Rate from the new one of the rate decision blocks 170 is then read. This Congestion Explicit Rate is the new cell rate to be provided in the system to avoid congestion. This Congestion Explicit Rate replaces the previous Congestion Explicit Rate in the backward RM cell. Therefore, it implies that the system uses explicit rate indication for congestion avoidance in ATM networks algorithm.

Regarding claims 43-44, Lincoln discloses that a forward resource management cell comprises an explicit rate parameter and a congestion parameter and modifying these parameters in the backward resource management cell (abstract; col. 2, lines 25-28; col. 7, line 43 – col. 8 line 5; figures 10-13.)

Regarding claim 45, Lincoln discloses that the system comprises:

a source port circuitry to send and receive control cells on a source virtual channel;

a destination port circuitry to send and receive control cells over a destination virtual channel (figures 2 and 5-6, elements 30 and 45);

a switch circuitry couples a source port and a destination port, which comprises a circuitry to exchange data and control cells between a source and a destination (figure 5, element 132);

a management portion couples to the source port to receive a control cell and compute resource management (figures 2 and 6, elements 29 and148 respectively);

a return cell circuitry (fig. 6, element 148) to receive control cells from a destination port, to modify control cells based on the resource management data computed (fig. 6, elements 38, 154, 156), and to provide the modify control cells to a source port over source virtual channel (fig. 6, element 152; col. 7, lines 22-30; col. 9, lines 8-14; col. 11, lines 21-30; col. 12, lines 9-19, col. 17, lines 14-26 and 60-62)

Regarding claim 46, Lincoln's system comprises a processor, which is connected to a memory (figure 2), the memory stores instructions to configure the processor to compute and store resource management data (fig. 3 and 4, elements 75 and 106 respectively.)

Regarding claim 47, the instructions in Lincoln's system inherently associate resource management data to control information in control cells.

Regarding claim 48, Lincoln discloses a system, which comprises a shared processor coupled to a memory (figure 2.)

Regarding claim 49, Lincoln's system inherently shares transmission circuitry by a physical link from a source to destination to get beneficial for economic reasons.

Regarding claim 50, both data cells and control cells in Lincoln's system are ATM cells, since Lincoln discloses a method for ATM system (abstract.)

Regarding claim 52, Lincoln discloses that the ABR manager 154 (fig. 6) may receive through the line 1a a forward resource management (RM) cell and a VCC (or source) number, which is stored in a queue of the control memory 38; fig. 5, col. 11, lines 19-23. Furthermore, the control memory 38 (FIG. 7) includes a table, which is generally indicated at 160 and which provides the values of a plurality of parameters in a plurality of different fields. This table is designated as ABR State (per VCC). This table indicates the values of a number of different parameters which are provided in different fields in the ABR State table 160 and which are individually used to facilitate the operation of the system and method of this invention (means for generating forward resource management (FRM) events from FRM cells in response to receipt of the FRM cells and means for storing the FRM events for later processing.)

Regarding claim 53, Lincoln teaches in fig. 6 that the scheduler 156 identifies the VCC (or the source) number providing the cell information to be processed. This VCC (or source) number is passed through the line 3a to the available bit rate (ABR) manager 154; col. 11, lines 1-4. In addition, fig. 7 shows detail of the control memory 38, which includes a table, which is generally indicated at 160 and which provides the values of a plurality of parameters in a plurality of different fields. This table is designated as ABR State (per VCC); col. 11, lines 34-38. Therefore, it indicates that the

system comprises a means for generating the plurality of parameters of the FRM cells for each VCC indicated in the FRM cell (the means for generating the FRM events comprises means for extracting virtual channel data from the FRM cells). Lincoln discloses that the control memory 38 stores FRM cell information in a queue; fig. 3-4, 6-7 (the means for storing the FRM events comprises a queue).

Regarding claim 54, Lincoln discloses that the control memory 38 stores FRM cell information in a queue; fig. 3-4, 6-7 (means for storing resource management data prepared using the FRM events). In addition, Lincoln teaches that when the station A is transmitting cells in the transmit direction to the station B, the station A changes its rate depending upon the response of the station B and the response of the switch 132 in the receive direction from the station B to the station A, col. 7, lines 22-26. Furthermore, Lincoln discloses in fig. 13-14 a procedure to adjust transmission rate (means for comparing received backward resource management (BRM) cells with the stored resource management data to determine whether to modify the BRM cells before forwarding.)

Response to Arguments

Applicant's arguments filed on 11/12/2003 have been fully considered but they are not persuasive.

Regarding claim 37, page 2 of the remarks, Applicant argues that the cited portions do not describe, "determining rate-based, flow-control data in a network switch, in response to receipt of a forward resource management control cell in the network switch" as claimed. Examiner apologizes for inconveniences caused by the missing

cited portion. A new portion relates to the limitation of the claim is cited above with respect to claim 37. Also, page 3, lines 9-14 of the remarks, Applicant argues that the reference do not describe "modifying in the network switch the received backward resource management control cell, before forwarding the backward resource management control cell to the source node, based on the rate-based, flow-control data determined in response to the receipt of the forward resource management control cell." Examiner respectfully disagrees. The reference clearly teaches these features. Applicant is directed to col. 7, lines 22-26 of the reference:

"When the station A is transmitting cells in the transmit direction to the station B, *the station A changes its rate depending upon the response of the station B and the response of the switch 132 in the receive direction from the station B to the station A*". In addition, col. 2, lines 4-14, Lincoln discloses "*The switches connected between the stations A and B sometimes provide congestion* in the transmission of the cells between the stations A and B... *The resource management cells provide rate information which is used to control the rates at which the cells are transmitted between the switches A and B* so that the cells will be transmitted at an optimal rate, but *without any congestion, in the path between the switches A and B*" It indicates that the switch 132 in fig. 5 modifies rate information in the backward RM before forwarding backward RM cell to the source. This is a well-known concept of the method of RM cell applied in the network.

Regarding claim 51, page 4, lines 8-22, Applicant argues "Lincoln fails to teach or suggest the claimed event-based calculations in the switch, where the preparation of rate-based, flow-control data for the returning backward RM cell, which passes through

the switch, is initiated in response to receipt of a forward RM cell passing through the switch". Examiner respectfully disagrees. The reference clearly teaches these features as recited in previous paragraphs. Also, Applicant argues that Lincoln does not teach the preparation of rate-based, is initiated *before receipt of the backward RM cell*. Examiner respectfully disagrees. Figure 12 a, step 208 and col. 17, lines 14-23, Lincoln discloses:

"A block 208 in FIG. 12a indicates how the new one of the Rate Decision Blocks 170 is selected to alleviate the congestion indication on the line 203. The value of the mantissa is stored in an explicit rate field in the backward RM cell. The new one of the rate decision blocks 170 is computed from this value of the mantissa and from the Exponent Base and Shift values in the Exponent Table 168. The Congestion Explicit rate from the new one of the rate decision blocks 170 is then read. This Congestion Explicit Rate is the new cell rate to be provided in the system to avoid congestion." And lines 40-43 "As will be appreciated, *if there is more than one (1) switch between the stations B and A in the receive direction, the congestion discussed in this paragraph may occur at any of these switches*." It indicates that the new rate is calculated at every node in the path between two end stations before receipt of a backward RM cell.

Regarding claim 39, page 4, lines 23-28 of the remark, Applicant argues that Lincoln's system does not store rate-based, flow-control data, which has been determined in a network switch in response to receipt of a forward resource management control cell, "before receipt of the backward resource management control cell in the network switch". Examiner respectfully disagrees. As explained above in

previous paragraphs, Lincoln's system performs the step of calculating rate-based, flow-control data, which has been determined in a network switch in response to receipt of a forward resource management control cell, before receipt of the backward resource management control cell in the network switch. Furthermore, Lincoln clearly discloses that the rate-based, flow-control data is stored in the control memory 38, which is described in figures 7 and 10.

Regarding claim 40, page 5, lines 9-13, Applicant argues that the reference fails to teach or suggest "receiving the forward resource management control cell in the network switch, and placing a management event record corresponding to the forward resource management control cell in a queue." Examiner respectfully disagrees. Figure 5, Lincoln clearly discloses the switch 132 receives RM cell from network element A and B (*receiving the forward resource management control cell in the network switch*). According to the specification on page 2, lines 18-20, *a management event* may include placing virtual channel identification in a queue and subsequently processing the queued data using a rate control algorithm. In figures 3-4, 7 and col. 11, line 32-col.12, line 21, The reference discloses that in order to support RM cells, the control memory 38 stores Available Bit Rate (ABR) state for each Virtual Channel Circuit (VCC) of the VCC queue 73. Furthermore, the control memory 38 stores cell decision block 164 and rate decision block 170 corresponding with VCC (placing a management event record corresponding to the forward resource management control cell in a queue).

Page 5, lines 9-13, Applicant argues that the reference "fails to teach or suggest processing a management event record, which was placed in a queue after receipt of

the corresponding FRM cell, after the FRM cell has been forwarded by the network switch." Examiner believes that this argument is not relevant because it is directed to subject matter not found in the claims.

Regarding claim 41, page 6, lines 4-7 of the remarks, Applicant argues that the reference does not teach or suggests the limitation, "said forwarding the forward resource management control cell occurs before said removing the management event record from the queue." Examiner respectfully disagrees. The record for each VCC in the memory control of the system disclosed by Lincoln is inherently removed after the RM cell is forwarded in order reuse VCC for another transmission.

Regarding claim 45, pages 6-7 of the remarks, Examiner does not find any specific argument corresponding to the limitations recited in the claim. Therefore, as best attempted, Examiner's response is based on underlined portions. For the limitation "receive control cells from the source virtual channel and to compute rate-based, flow-control data in response to receipt of a forward resource management control cell", Examiner believes that this argument is responded above with respect to claim 37. Furthermore, Applicant recites the limitation "modify a backward resource management control cell based on the rate-based, flow-control data computed by the management event circuitry". Applicant is direct to col. 7, lines 22-27, col. 12, lines 9-19, col. 17, lines 14-26 and 60-62, where the reference discloses the backward RM cell is updated the rate-based and flow-control.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai D Hoang whose telephone number is (703) 305-3232. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (703) 305-4378. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Thai Hoang

CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 1/22/04